Algebra and Geometry 1. Homework 21.

1. There are twice as many girls in the class then boys. If three girls will move out and three boys will come to the class, than there will be 4 more girls then boys. How many students are in the class?

2. Write the expressions as polynomials:
   Example:
   $4a^3 + (a - a^2)(3 + 4a) = 4a^3 + 3a + 4a^2 - 3a^2 - 4a^3 = a^2 + 3a$
   $(1 - 2x)(2 + x) + (1 - x)(2 - 2x) = 2 + x - 4x - 2x^2 + 2 - 2x - 2x + 2x^2 = -7x + 4$
   $a.\ 8 - (2 + a)(3a + 4)$
   $b.\ 2a^3 + (a + a^2)(5 - 2a)$
   $c.\ (1 - x)(2 + 2x) + (2 - x)(1 - 2x)$
   $d.\ (x - 2)(x - 5) - (x - 3)(x - 4)$

3. Factorize:
   Example:
   $2(x - 3) + x^2 - 3x = 2(x - 3) + x(x - 3) = (x - 3)(2 + 2x)$
   $a.\ 3(x - 4) + x^2 - 4x;$ $b.\ 2x - 8 - x(x - 4);$
   $c.\ x^3 + 5x^2 - 2x - 10;$ $d.\ x^3 - 6x^2 - 2x + 12;$

4. Simplify (reduce) fractions:
   $a.\ \frac{3x^2}{15x^3};$ $b.\ \frac{2x - 8}{3x - 12};$ $c.\ \frac{x^2 - 9}{(x + 3)^2}$

5. The perimeter of a rectangle is 294 meters. The ratio of its length to its width is 5:2. Find the area of the rectangle.
6. The angles of a triangle are in the ratio 1:3:8. Find the measures of the three angles of this triangle.
7. Solve the following equations:
   $a.\ |x + 2| = 7;$ $b.\ |x| + 3 = 9;$ $c.\ \big||x| - 3\big| = 13$